



02716.0005.NPUS01.ST25.txt
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<110> JENSEN, Rasmus B.
KELEMEN, Bradley
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<151> 2002-11-26
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35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
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Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
35 40 45

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50 55 60

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met Arg
65 70 75 80

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
100 105 110

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
130 135 140

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
210 215 220

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 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
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Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
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Tyr Asp Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
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Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala Lys
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20 25 30

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35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
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Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
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Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asp Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
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Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala Lys
245 250

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35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Ile Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
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Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
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Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
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Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
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Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
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Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
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Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
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 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu His Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
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Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
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 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Val Val Glu Phe Tyr
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Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
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Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
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Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
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Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Asn Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Trp Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Val Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
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 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Asn Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 18
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 18

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Asn Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 19
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 19
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 aaaacatcat taactgtatc tgggtcttgtt actggtattg ctttctggca ttacatgtac 240
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 agtcctgctg ttcagtcagc ttacaacaca atgatgatga tcatcatctt tgggtgggca 600
 atttatcctg taggttattt cacaggttac ctaatgggtg acggtggatc agcacttaac 660
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 tggaatgttg ctgttaaaga atcttcta at gct 753

<210> 20
 <211> 753
 <212> DNA
 <213> Marine eubacteria

<400> 20
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 atttatcctg taggttatctt cacaggttac ctaatgggtg acggtggatc agcacttaac 660
 ttaaaccctta tctataacct tgctgacttt gttaacaaga ttctatttgg ttttaattata 720
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<210> 21

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 21

Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
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Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 22
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 22
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gctttattag catctactgt atttttcttt gttgaaagag atagagtttc tgcaaatgg 180
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gttgctgctg gcctgtttta gaaattattg gttggttctc ttgttatgct tgtgtttggt 420
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atttatcctg taggttattt cacagggttac ctaatgggtg acggtggatc agctcttaac 660
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tggaatgttg ctgttaaaga atcttctaata gct 753

<210> 23
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 23

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gln Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

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Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Leu Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 24
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 24
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gctctattag catctactgt atttttcttt gttgaaagag atagagtttc tgcaaaatgg 180
aaaacatcat taactgtatc tgggtcttggt actgggtattg ctttctggca ttacatgtac 240
atgagagggg tatggattga aactgggtgat tcgccaactg tatttagata cattgattgg 300
ttactaacag ttcctctatt aatatgtgaa ttctacttaa ttcttgctgc tgctactaat 360
gttgctggat cattatttaa gaaattacta gttggttctc ttgttatgct tgtgtttggt 420
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agtccttcgg ttcaatcagc ttacaacaca atgatggcta tcatagtctt cggttgggca 600
atttatcctg taggttattt cacaggttac ctaatgggtg acggtgggtc agctcttaac 660
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<210> 25
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 25

Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
1 5 10 15

Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Ala Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser
245

<210> 26

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 26

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gctttattag catctactgt atttttcttt gttgaaagag atagagtttc tgcaaatgg 180

aaaacatcat taactgtatc tgggtctgtt actggtattg ctttctggca ttacatgtac 240

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gttgctggat cattatttaa gaaattacta gttggttctc ttgttatgct tgtgtttggt      420
tacatgggtg aagcaggaat catggctgca tggcctgcat tcattattgg gtgttttagct      480
tgggtataca tgatttatga attatgggct ggagaaggaa aatctgcatg taatactgca      540
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atttatcctg taggttattt cacaggttac ttgatgggtg acggtggatc agctcttaac      660
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<210> 27
<211> 251
<212> PRT
<213> Marine eubacteria

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<400> 27

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Thr Met Gly Lys Leu Leu Ile Ile Gly Ser Val Ile Ala Leu Pro
1           5           10          15

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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
          20           25           30

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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
      35           40           45

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Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50           55           60

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Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65           70           75           80

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Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
      85           90           95

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Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
      100          105          110

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Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
      115          120          125

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Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130           135          140

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Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 28
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 28
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tggaatgttg ctgttaaaga atcttcta gct 753

<210> 29
<211> 249

<212> PRT

<213> Marine eubacteria

<400> 29

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Ala Gly Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Asn Ala Trp Gly Ala Phe Val Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ala Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Asn Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser
245

<210> 30
<211> 748
<212> DNA
<213> Marine eubacteria

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gctctattag catctactgt atttttcttt gttgaaagag atagagtttc tgcaaaatgg 180
aaaacatcat taactgtatc gggctctgtt actgggtattg ctttctggca ttacatgtac 240
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tggaatgttg ctgttaaaga atcttcta 748

<210> 31
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 31

Thr Met Gly Lys Leu Leu Arg Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
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65

70

75

80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 32

<211> 753

<212> DNA

<213> Marine eubacteria

<400> 32

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gctctattag catctactgt atttttcttt gttgaaagag atagagtttc tgcaaatgg 180

aaaacatcat taactgtatc tggcttgggt actggtattg ctttctggca ttacatgtat 240

atgagaggag tatggattga aactggtgat tcgccaactg tatttagata cattgattgg 300

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<210> 33
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 33

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Thr Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

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Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 34
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 34
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gttgccggct cattatttaa gaaacttcta gttggttctc ttggtatgct tgtgtttggt 420
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<210> 35
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 35

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro
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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ser Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Ala Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Ala Ala Val Lys Glu Ser Ser Asn Ala
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<210> 36
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 36
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<210> 37
<211> 251
<212> PRT
<213> Marine eubacteria

<400> 37

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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala
145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
180 185 190

Tyr Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 38
<211> 753
<212> DNA
<213> Marine eubacteria

<400> 38
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gttgctggat cattatttaa gaaattactt gttggttctc ttgttatgct tgtgtttggt 420

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 agtcctgctg tgcaatcagc ttacaacaca atgatgtata tcatcatctt tggttgggcg 600
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<210> 39
 <211> 251
 <212> PRT
 <213> Marine eubacteria
 <400> 39

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Val Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu
 130 135 140

Ala Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Val Gly Cys Leu Ala
 145 150 155 160

Trp Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala
 165 170 175

Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met
 180 185 190

Tyr Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr
 195 200 205

Gly Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 40
 <211> 753
 <212> DNA
 <213> Marine eubacteria

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 aaaacatcat taactgtatc tggctctggt actggtattg ctttctggca ttacatgtat 240
 atgagaggag tatggattga aactggtgat tcgccaactg tatttagata cattgattgg 300
 ttactaacag ttcctttatt aatatgtgaa ttctacttaa ttcttgctgc tgcaactaat 360
 gttgccggct cattatttaa gaaacttcta gttggttctc ttgttatgct tgtgtttggt 420
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 ctaaacctta ttataacct tgctgacttt gttaacaaga ttctatttgg tttaattata 720
 tggaatgttg ctgttaaaga atcttcta gct 753

<210> 41
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 41

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 Page 34

1

5

10

15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Leu Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu His Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 42
 <211> 756
 <212> DNA
 <213> Marine eubacteria

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 ctattaactg ttccattaca aatgggtgag ttctatctaa ttcttgctgc ttgtacaagt 360
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 tttgcaggcg aagctgggtt agctcctgta ttacctgctt tcattcttgg tatggctggt 480
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 atttatcctg ctggatatgc tgctggttac ctaatgagtg gtgacggtgt atacgcttca 660
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 atttggaatg ttgctgttaa agaatcttct aatgct 756

<210> 43
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 43

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
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Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Glu Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 44
 <211> 756
 <212> DNA
 <213> Marine eubacteria

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<210> 45
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 45

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 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Asn Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Trp Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 Page 38

180

185

190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 46
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 46
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<210> 47
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 47

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35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Ser Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 48
<211> 756
<212> DNA

<213> Marine eubacteria

<400> 48

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<210> 49

<211> 252

<212> PRT

<213> Marine eubacteria

<400> 49

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          20          25          30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
          35          40          45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
          50          55          60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65          70          75          80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
          85          90          95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
          100          105          110

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Leu Ile Leu Ala Ala Cys Thr Asn Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Trp Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Val Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 50
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 50
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 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
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 Page 42

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<210> 51
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 51

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
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Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 52
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 52
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 aacttaaacc ttatatataa ccttgctgac cttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaattctct aatgct 756

<210> 53
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 53

Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
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Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
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Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45
 Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60
 Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80
 Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95
 Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Val Val Glu Phe Tyr
 100 105 110
 Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125
 Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140
 Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160
 Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175
 Val Ser Thr Ala Ser Pro Ala Val Asn Pro Ala Tyr Asn Ala Met Met
 180 185 190
 Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205
 Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220
 Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240
 Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 54
 <211> 756
 <212> DNA
 <213> Marine eubacteria
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<210> 55
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 55

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 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 Page 46

115

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu His Met Gly Glu Gly Lys Ala Ala
165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
180 185 190

Lys Ile Ile Val Ile Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
195 200 205

Gly Tyr Leu Met Ser Gly Asp Gly Val Tyr Ala Ser Asn Leu Asn Leu
210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 56
<211> 756
<212> DNA
<213> Marine eubacteria

<400> 56
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atttggaatg ttgctgttaa agaattcttct aatgct 756

<210> 57
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 57

Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Thr Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 58
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 58
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 aacttaaacc ttatatataa ctttgctgac tttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaattctct aatgct 756

<210> 59
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 59

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Lys Ser Ser Asn Ala
245 250

<210> 60

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 60

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 aatgttgctg ttaaaaaatc ttctaagtct a 751

<210> 61
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 61

Met Gly Lys Leu Leu Leu Ile Leu Gly Asn Val Ile Ala Leu Pro Thr
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 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 62
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 62
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<210> 63
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 63

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 64
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 64
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 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
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<210> 65
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 65

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 Page 54

50

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 66
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 66
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<210> 67
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 67

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Asn Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 68
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 68
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 ctattagcgt ctactgtatt cttctttgtt gaaagagata gagtgtctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300
 ttaacagtgc ctttactaat atgtgagttc tatttaatac ttgccgcagc tactaatggt 360
 gctggttcat tatttaagaa attgctagtt ggttctcttg ttatgcttgt gttcggttac 420
 atgggtgaag caggaataat ggcagcttgg cctgcattca tcattgggtg tttagcatgg 480
 gtatatatga tttatgagct atgggctggt gaaggaaaat ctgcatgtaa tactgcaagt 540
 cctgctgtac agtcagctta caacacaatg atgtatatca tcatcgctgg ttgggcaatt 600
 tatcctgtag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
 aaccttaatt ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 69

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 69

Met Gly Lys Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
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225

230

235

240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 70
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 70
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 ggtggcgatc ttgatgctag tgactataact ggtgtttcat tctggttagt tactgctgct 120
 ctattagcgt ctactgtatt cttctttggt gaaagagata gagtgtctgc aaaatggaaa 180
 acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
 agaggtgtat ggatagaaac tggtgattcg cctactgtct ttagatacat agactggtta 300
 ttaactgtgc ctttactaat atgtgagttc tatctgatac ttgctgcagc tactaatggt 360
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 atgggtgaag caggaataat ggcagcttgg cctgcattca tcattggatg tttagcatgg 480
 gtatatatga tttatgaact atgggctggt gaaggaaaat ctgcatgcaa tactgcaagt 540
 cctgctgtac aatcagctta caacacaatg atgtatatca tcatcgttgg ttgggcaatt 600
 tatcctgtag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
 aaccttattt ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 71
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 71

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 72

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 72

atgggtaaatt tattactgat attaggtagt gttattgcgc ttccaacatt tgccgctggc 60

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ctattagcat ctactgtatt cttctttggt gaaagggata gagtatctgc,aaaatggaaa 180

acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240

agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300


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tatcctgtag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaagtct a 751

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```

<210> 73
<211> 250
<212> PRT
<213> Marine eubacteria

```

```
<400> 73
```

```

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1           5           10           15

```

```

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20           25           30

```

```

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35           40           45

```

```

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50           55           60

```

```

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65           70           75           80

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```

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85           90           95

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```

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100          105          110

```

```

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115          120          125

```

```

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130          135          140

```

```

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145          150          155          160

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Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 74
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 74
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 agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactgggtg 300
 ctaactgtgc ctttactaat ttgtgagttc tacttaatac tagcagcagc tactaacgtt 360
 gctggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
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 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 75
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 75

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Ala Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 76
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 76
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gggtggcgatc ttgatgctag tgactacact ggtgtttctt tctgggttagt tactgctgct 120
ctattagcat ctactgtatt cttctttgtt gaaagggata gagtatctgc aaaatggaaa 180
acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240
agaggtgtat ggatagaaac tggtagttca cctactgtct ttagatacat tgactggcta 300
ttaacagtgct ctttactaat atgtgagttc tattaatac ttgccgcagc tactaatggt 360
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gtatatatga tttatgagct atgggctggt gaaggaaaat ctgcatgtaa tactgcaagt 540
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aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 77
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 77

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 78

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 78

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ctattagcgt ctactgtatt cttctttggt gaaagagata gagtgtctgc aaaatggaaa 180

acttcattaa cagtatctgg tttagttact ggtattgctt tttggcatta tatgtacatg 240

agaggtgtat ggatagaaac tgggtattcg cctactgtct ttagatacat cgactggtta 300

ttaactgtgc ctttactaat atgtgagttc tatctgatac ttgctgcagc tactaatgtt 360

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 gtatatatga tttatgaact atgggctggg gaaggaaaat ctgcatgcaa tactgcaagt 540
 cctgctgtac agtcagctta caacacaatg atgtatatca tcatcgttgg ttgggcaatt 600
 taccctgtag gttatttcac aggttaccta atgggtgacg gtggatcagc tcttaatcta 660
 aaccttattt ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
 aatggtgctg ttaaagaatc ttctaattgct a 751

<210> 79
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 79

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Ala
 50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Cys Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
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165

170

175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Val Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 80
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 80
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 ggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggttagt tactgctgct 120
 ttattagcat ctactgtatt tttctttggt gaaagagata gagtttctgc aaaatggaaa 180
 acatcattag ctgtatctgg tcttattact ggtattgcgt tctggcattg catgtacatg 240
 agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggtta 300
 ctaacagttc ctctattaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360
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 tctctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaattgct 750

<210> 81
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 81

Met Gly Lys Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15
 Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30
 Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Ser
 35 40 45
 Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60
 Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80
 Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95
 Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110
 Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125
 Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140
 Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160
 Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175
 Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190
 Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205
 Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220
 Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240
 Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 82
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 82
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 ttattagcat ctactgtatt ttcctttggt gaaagagata gagtttctgc aaaatggaaa 180
 acatcattaa ctgtatctgg tcttattact ggtattgctt tctggcatta catgtacatg 240
 agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattgggta 300
 ctaacagttc ctctattaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360
 gctggatcat tattaagaa attactagtt gggtctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
 cctgctgtgc aatcagctta caacacaatg atgtatatta tcatctttgg ttgggcgatt 600
 tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaattgct 750

<210> 83
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 83

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Ser Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 84
<211> 750
<212> DNA
<213> Marine eubacteria

<400> 84
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 tattcctgtag gttattttcac aggttacctg atgggtgacg gtggatcagc acttaactta 660
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<210> 85
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 85

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 86
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 86
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 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 87
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 87

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

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 20 25 30
 Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45
 Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60
 Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80
 Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95
 Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110
 Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125
 Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140
 Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160
 Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175
 Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190
 Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205
 Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220
 Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240
 Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 88
 <211> 751

<212> DNA

<213> Marine eubacteria

<400> 88

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<210> 89

<211> 250

<212> PRT

<213> Marine eubacteria

<400> 89

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Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1           5           10           15

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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20           25           30

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Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35           40           45

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Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50           55           60

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Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65           70           75           80

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Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85           90           95

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Ile Asp Trp Leu Leu Pro Val Pro Leu Ala Ile Cys Glu Phe Tyr Leu

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100

105

110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 90

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 90

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acatcattaa ctgtatctgg tcttggtact ggtattgctt tctggcatta catgtacatg 240

agaggggtat ggattgaaac tgggtattcg ccaactgtat ttagatacat tgattgggta 300

ctaccagttc ctctagcaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360

gctggatcat tattaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420

atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg ttttagcttg 480

gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540

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 aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 91
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 91

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 92
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 92
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 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 93
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 93

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Ser Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 94
<211> 751
<212> DNA
<213> Marine eubacteria

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aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg    720
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<210> 95
<211> 250
<212> PRT
<213> Marine eubacteria

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<400> 95

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Met Gly Lys Leu Leu Leu Arg Leu Gly Ser Val Ile Ala Leu Pro Thr
1           5           10           15

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```

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20           25           30

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Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35           40           45

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```

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50           55           60

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```

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65           70           75           80

```

```

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85           90           95

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Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100          105          110

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Ile Leu Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 96
 <211> 751
 <212> DNA
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<210> 97
<211> 250
<212> PRT
<213> Marine eubacteria
<400> 97

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Ala
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 98
 <211> 751
 <212> DNA
 <213> Marine eubacteria

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 aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 99
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 99

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
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Phe Ala Ala Gly Gly Gly Asp Pro Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 Page 82

35

40

45

Phe Val Glu Arg Asp Arg Val Ser Ala Glu Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Glu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Ile Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 100

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 100

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 agaggggtat ggattgaaac tgggtattcg ccaactgtat ttagatacat tgattgggta 300
 ctaacagttc ctctagaaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360
 gctggatcat tattaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg ttttagcttgg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
 cctgctgtgc aatcagctta caacacaatg atgtatatta tcatcttttg ttgggcgatt 600
 tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttgtt aacaagattc taattgggtt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 101
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 101

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Val Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 102
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 102
 atgggtaaat tattactgat cttaggtagt gttattgcac ttcctacatt tgctgcaggt 60
 ggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggttagt tactgctgct 120
 ttattagcat ctactgtatt tttctttggt gaaagagata gagtttctgc aaaatggaaa 180
 acatcattaa ctgtatctgg tcttggtact ggtattgctt tctggcatta catgtacatg 240
 agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattgggta 300
 ctaacagttc ctctagtaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360
 gctggatcat tattaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg ttttagcttg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
 cctgctgtgc aatcagctta caacacgatg atgtatatta tcatctttgg ttgggcgatt 600
 tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataacctgac tgactttggt aacaagattc tatttggttt aattatatgg 720

aatgttgctg ttaaagaatc ttctaagtct a

751

<210> 103
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 103

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Pro Gly Leu Ile Thr Asp Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
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210 02716.0005.NPUS01.ST25.txt
215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 104
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 104
atgggtaaat tattactgat attaggtagt gttattgcac ttctacatt tgctgcaggt 60
gggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggttagt tactgctgct 120
ttattagcat ctactgtatt tttctttggt gaaagagata gagtttctgc aaaatggaaa 180
acatcattaa ctgtacctgg tcttattact gatattgctt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattggtta 300
ctaacagttc ctctacaaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tattaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcgagt 540
cctgctgtgc aatcagctta caacacaatg atgtatatta tcatctttgg ttgggcgatt 600
tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaattgt a 751

<210> 105
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 105

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Pro Gly Leu Ile Thr Asp Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn
245

<210> 106

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 106

atgggtaaat tattactgat attaggtagt gttattgcac ttcctacatt tgctgcaggt 60

ggtggtgacc ttgatgctag tgattacact ggtgtttctt tttggttagt tactgctgct 120

ttattagcat ctactgtatt tttctttgtt gaaagagata gagtttctgc aaaatggaaa 180

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acatcattaa ctgtacctgg tcttattact gatattgctt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tgggtattcg ccaactgtat ttagatacat tgattgggta 300
ctaacagttc ctctacaaat atgtgaattc tacttaattc ttgctgctgc aactaatggt 360
gctggatcat tatttaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcgagt 540
cctgctgtgc aatcagctta caacacaatg atgtatatta tcatctttgg ttgggcgatt 600
tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaatt 748

<210> 107
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 107

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Gly Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Pro Gly Leu Ile Thr Asp Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Ser Leu Gln Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 108
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 108
atgggtaaat tattactgat attaggtagt gttattgcac ttcctacatt tgctgcaggt 60
ggtggtgacc ttgatgctag tggttacact ggtgtttctt tttggttagt tactgctgct 120
ttattagcat ctactgtatt tttctttgtt gaaagagata gagtttctgc aaaatggaaa 180
acatcattaa ctgtacctgg tcttattact gatattgctt tctggcatta catgtacatg 240
agaggggtat ggattgaaac tggtgattcg ccaactgtat ttagatacat tgattgggta 300
ctaacagttt ctctacaaat atgtgaattc tacttaattc ttgctgctgc aactaatgtt 360
gctggatcat tatttaagaa attactagtt gggtctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg tttagcttgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcgagt 540
cctgctgtgc aatcagctta caacacaatg atgtatatta tcatctttgg ttgggcgatt 600
tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataacctgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
aatgttgctg ttaaagaatc ttctaattgct a 751

<210> 109
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 109

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Pro Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Ala Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Glu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 110
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 110
 atgggtaaat tattactgat attaggtagt gttattgcac ttcttacatt tgctgcaggt 60
 ggtggtgacc ttgatgctag tgattacact ggtgtttctt ttgggttagt tactgctgct 120
 ttattagcat ctactgtatt tttctttggt gaaagagata gagtttctgc aaaatggaaa 180
 acatcattaa ctgtacctgg tcttggtact ggtattgctt tctggcatta catgtacatg 240
 agaggggtat ggattgaaac tgggtattcg ccagctgtat ttagatacat tgattgggta 300
 ctaacagttc ctctagagat atgtgaattc tacttgattc ttgctgctgc aactaatggt 360
 gctggatcat tattaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaatcat ggctgcatgg cctgcattca ttattgggtg ttttagcttg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaaat ctgcatgtaa tactgcaagt 540
 cctgctgtgc aatcagctta caacacaatg atgtatatta tcattcttggtg ttgggcgatt 600
 tatcctgtag gttatttcac aggttacctg atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 111
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 111

Met Gly Lys Leu Leu Val Met Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

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Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 112

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 112

atgggtaaatt tattagtgat gttaggtagt gttattgcgc ttccaacatt tgccgctggt 60

ggtggtgacc tggatgctag tgactacact ggtgtatctt tctggttagt tactgctgct 120

ctattagcat ctactgtatt tttctttggt gaaagagaca gagtttctgc taaatggaaa 180

acatcattaa cagtatctgg tttagttact ggtattgctt tttggcatta catgtacatg 240

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agaggtgtat ggattgaaac tgggtgattca ccaactgttt ttagatacat cgactgggttg 300
 ctaactgtgc ctttactaat ttgtgagttc tacttaatac tagcagcagc tactaacgtt 360
 gctgggttctt tattcaagaa attactagtt gggttctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
 cctgcagttc agtcagctta caacacaatg atgtatatca tcatctttgg ttgggctatt 600
 taccctgtag gttatttcac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttgtt aacaagattc tatttggttt aattatatgg 720
 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 113
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 113

Met Gly Lys Arg Leu Val Ile Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
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145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 114
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 114
atgggtaaaa gattagtgat attaggtagt gttattgcgc ttccaacatt tgccgctggt 60
ggtggtgacc tggatgctag tgactacact ggtgtatctt tctggttagt tactgctgct 120
ctattagcat ctactgtatt tttctttggt gaaagagaca gagtttctgc taaatggaaa 180
acatcattaa cagtatctgg tttagttact ggtattgctt tttggcatta catgtacatg 240
agagggtgat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactggttg 300
ctaactgtgc ctttactaat ttgtgagttc tacttaatac tagcagcagc tactaacggt 360
gctgggttctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
cctgcagttc agtcagctta caacacaatg atgtatatca tcatctttgg ttgggctatt 600
tacctttagt gttatttcac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattatatgg 720
aatggtgctg ttaaagaatc ttctaagtct a 751

<210> 115
<211> 250
<212> PRT

<213> Marine eubacteria

<400> 115

Met Gly Lys Ala Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Thr
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Pro Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Phe Gly Trp Ala Ile Tyr Leu Val Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Arg
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 116
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 116
 atgggtaaag cattactgat gttaggtagt gttattgcgc ttccaacatt tgccgctggt 60
 ggtggtgacc tggatgctag tgactacact ggtgtatctt tctggtagt tactgctgct 120
 ccattagcat ctactgtatt tttctttggt gaaagagaca gagtttctgc taaatggaaa 180
 acatcattaa cagtatctgg tttagttact ggtattgctt tttggcatta catgtacatg 240
 agaggtgtat ggattgaaac tggtgattca ccaactgttt ttagatacat cgactgggtg 300
 ctaactgtgc ctttactaat ttgtgagttc tacttaatac tagcagcagc tactaacggt 360
 gctgggtctt tattcaagaa attactagtt ggttctcttg ttatgcttgt gtttggttac 420
 atgggtgaag caggaattat ggcagcctgg cctgcattca ttataggatg tttagcatgg 480
 gtatacatga tttatgaatt atgggctgga gaaggaaagt ctgcatgtaa cactgcaagt 540
 cctgcagttc agtcagctta caacacaatg atgtatatca tcattcttgg ttgggctatt 600
 tacctttagt gttatttcac tggttaccta atgggtgacg gtggatcagc tcttaactta 660
 aaccttatct ataaccttgc tgactttggt aacaagattc tatttggttt aattataagg 720
 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 117
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 117

Met Gly Lys Gly Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
 65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Ile Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Ile Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

His Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 118

<211> 751

<212> DNA

<213> Marine eubacteria

<400> 118

atgggtaaaag gattactgat gttaggtagt gttattgctg ttccatcttt tgctgctggc 60

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ttattagcct caactgtttt cttctttggt gaaagagaca gagttgctgc aaaatggaaa 180

acatcggttaa cagtatctgg tcttggttact ggtattgctt tttggcatta catgtacatg 240

agagggggttt gggtagagac tggatgaatca ccaactgtat tcagatatat tgactggcta 300

ctaacagtac cattattaat atgtgagttc tacttaatac ttgcagctgc aactaatgtt 360

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gctgggttctt tatttaaaaa gctattaatt gggtctcttg ttatgcttgt gtttggttac 420
atgggtgaag caggaatcat ggcagcttgg cctgcattca ttattgggtg cttagcttgg 480
ttctacatga tttatgaact atgggctggg gaaggaaagt ctgcttgtaa tactgcaagt 540
ccagctgttc aatcagcata caacacgatg atgtatatta ttatcattgg ttgggctatt 600
taccctgtag gttactttac tggttaccta atgggtgacg gcggatctgc cttaaactta 660
aacctaattt ataaccttgc tgacttcgtt aacaagattc tatttggttt aattatctgg 720
catgttgctg ttaaagaatc ttctaattgt a 751

<210> 119
<211> 250
<212> PRT
<213> Marine eubacteria

<400> 119

Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Gly Asp Tyr Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Ile Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Met Tyr Met
65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190

Ile Ile Ile Ile Gly Trp Ala Ile Tyr Pro Leu Gly Tyr Phe Thr Gly
 195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 120
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 120
 atgggtaaat tattattgat cttaggtagt gttattgctg ttccttcatt tgcagctggt 60
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 agagggtgttt gggtcgaaac tgggtgaatca ccaactgtat tcagatatat tgactggcta 300
 cttacagtgc ctttattaat atgtgagttt tatctgattc ttgcagctgc aactaatgtt 360
 gctggttctt tatttaagaa gcttttagtt gggtctcttg taatgcttgt atttggttat 420
 atgggcgaag caggaattat ggcagcttgg cctgcattca ttgttgatg ttttagcttgg 480
 ttctatatga tttatgagct atgggctgga gaaggaaaat ctgcatgcaa tactgcaagt 540
 ccagctgttc aatcagcata caacacaatg atgtatatta ttatcattgg ttgggctatt 600
 tatcctcttg ggtactttac tggttacctt atgggtgacg gcggatcagc cttaaactta 660
 aacctaattt ataaccttgc tgactttgtt aacaagattc tatttggttt aatcatatgg 720
 catgtcgctg ttaaagaatc ttctaattgct a 751

<210> 121
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 121

Met Gly Lys Gln Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Ser
 1 5 10 15
 Phe Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30
 Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45
 Phe Ile Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60
 Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80
 Arg Gly Val Trp Val Glu Thr Gly Glu Ser Pro Thr Val Phe Arg Tyr
 85 90 95
 Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
 100 105 110
 Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125
 Leu Ile Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
 130 135 140
 Gly Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
 145 150 155 160
 Val Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
 165 170 175
 Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
 180 185 190
 Ile Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly
 195 200 205
 Tyr Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr
 210 215 220
 Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240
 His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 122
 <211> 751
 <212> DNA
 <213> Marine eubacteria

<400> 122
 atgggtaaac aattactgat cttaggtagt gttattgcgc ttccatcttt tgctgctggc 60
 ggtggcgatc ttgatgctag tgactataca ggtgtttcat tctggtagt tactgctgca 120
 ttattagcct caactgtttt cttttttatt gaaagagaca gagttgctgc aaaatggaaa 180
 acgtcgtaa cagtatctgg ccttggtact ggtattgctt ttggcacta cttgtatatg 240
 agaggagttt gggtagagac tggtagaatca ccaactgtat tcagatatat tgactgggta 300
 ctaacagtac cattattaat atgtgagttt tacttaatac ttgcagctgc aactaatggt 360
 gctggttcct tatttaaaaa gctattaatt ggttctcttg tgatgcttgt gtttggttac 420
 atgggtgaag caggaatcat ggcggcttgg cctgcattca ttattgggtg cttagcttgg 480
 gtctatatga tatatgagct atgggctggt gaaggaaaat ctgcatgtaa tactgcaagt 540
 ccagctgttc aatcagcata caacacaatg atgtatatta ttatctttgg ttgggctatt 600
 taccctgtag gttactttac tggttaccta atgggtgacg gcggatctgc cttaaaactta 660
 aaccttatct ataaccttgc tgacttcgtt aacaagattc tatttggttt aattatctgg 720
 catgttgctg ttaaagaatc ttctaagtct a 751

<210> 123
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 123

Met Gly Lys Leu Leu Met Met Leu Gly Ser Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val
 20 25 30

Ser Phe Gly Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
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Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala
130 135 140

Gly Ile Met Ala Ala Leu Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp
145 150 155 160

Ile Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys
165 170 175

Asn Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr
180 185 190

Ile Ile Ile Phe Gly Trp Leu Ile Tyr Pro Val Gly Tyr Ala Ser Gly
195 200 205

Tyr Leu Met Gly Asp Gly Gly Ser Ala Met Asn Leu Asn Leu Ile Tyr
210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 124
<211> 751
<212> DNA
<213> Marine eubacteria

<400> 124
atgggtaaat tattaatgat gttaggtagt gttattgcgc ttccttcatt tgcggcaagt 60
gggtggcgatt tggatgctag tgattacact ggtgtttcat ttgggttggt gactgcagct 120
ttattagctt caactgtatt tttctttggt gaaagagata gagtttctgc taaatggaag 180
acatctttga cagtatcagg tttagttact ggtattgctt tttggcatta cttatatatg 240
agaggtgtat gggttgaaac tgggtgaaact ccaacagtat ttagatatat tgattgggta 300
ttaactgttc cattactaat ctgcgagttt tattaattc tagctgctgc aactaacgta 360
gctggttcat tattaagaa actacttggt ggttcacttg taatgcttgt gtttgatac 420

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atgggtgaag caggaatcat ggcagctttg cctgcattca ttattgggtg tttggcatgg 480
 atatatatga tttatgagct ttgggctgga gaagggaaat ctgcatgcaa tactgcaagt 540
 cctgccgttc aatcagctta caacaccatg atgtacatca tcatttttgg ttgggtaatc 600
 tatccagttg gttatgcatc aggctatcta atgggcatg gcggatcagc tatgaactta 660
 aacttaatat ataaccttgc tgactttgtt aacaagattc tatttggttt aattatctgg 720
 aatgttgctg ttaaagaatc ttctaagtct a 751

<210> 125
 <211> 258
 <212> PRT
 <213> Marine eubacteria

<400> 125

Met Gly Lys Gly Leu Leu Met Leu Gly Ser Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asn Leu Asn Ala Ala Asp Val Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
 35 40 45

Phe Ile Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Val Asp Ser Trp Asn Pro Glu Thr Gly Met Gly Glu
 85 90 95

Ser Pro Thr Glu Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu
 100 105 110

Leu Ile Cys Glu Phe Tyr Leu Ile Leu Ala Ala Ala Thr Asn Val Ala
 115 120 125

Gly Ser Leu Phe Lys Lys Leu Leu Val Gly Ser Leu Val Met Leu Ile
 130 135 140

Ala Gly Tyr Met Gly Glu Ser Gly Asn Ala Asn Val Met Ile Ala Phe
 145 150 155 160

Val Val Gly Cys Leu Ala Trp Leu Tyr Met Ile Tyr Glu Leu Trp Ala
 165 170 175

Gly Glu Gly Lys Ala Ala Cys Asn Thr Ala Ser Pro Ala Val Gln Ser
 180 185 190

Ala Tyr Asn Thr Met Met Trp Ile Ile Ile Val Gly Trp Ala Ile Tyr
 195 200 205

Pro Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly Gly Glu Ser Val Tyr
 210 215 220

Ala Ser Asn Leu Asn Leu Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys
 225 230 235 240

Ile Leu Phe Gly Leu Ile Ile Trp His Val Ala Val Lys Glu Ser Ser
 245 250 255

Asn Ala

<210> 126
 <211> 775
 <212> DNA
 <213> Marine eubacteria

<400> 126
 atgggtaaag gattactgat gttaggtagt gttattgcac ttccatcctt tgcagctggt 60
 ggaggcaact taaatgcagc tgatgtaact ggtgtatctt tttggctagt tactgccgct 120
 ttacttgctt caacagtatt cttttttatt gaaagagata gagtttctgc aaaatggaag 180
 acatcactaa cagtatctgg tttagttact ggtattgctt tttggcatta cctttacatg 240
 agaggtgttt ggggttgattc ttggaatcct gaaacaggaa tgggagaatc tccaactgaa 300
 tttagatata ttgattgggtt actaacagta cctttattaa tttgtgagtt ttatctaata 360
 ttagctgctg caacaaatgt tgctgggttca ttattcaaaa aattattagt tggttcattg 420
 gtcatgctta ttgcaggata catgggtgaa tctggtaatg ccaatgtgat gattgcattc 480
 gtagttggat gcttagcatg gttgtatatg atatatgaat tgtgggctgg tgaaggtaaa 540
 gcagcttgca atacagcaag ccctgctgtt caatcagcat acaatacaat gatgtggatc 600
 attattgtag gttgggctat atatcctgct ggatatgctg ctggctatctt gatgggtgga 660
 gaaagcgttt atgcttctaa ccttaacctg atatataacc ttgctgactt tgtaacaag 720
 attttatttg gtttaatcat ttggcatggt gctgttaaag aatcttctaa tgcta 775

<210> 127
 <211> 257
 <212> PRT
 <213> Marine eubacteria

<400> 127

Met Gly Lys Leu Leu Val Met Leu Gly Ser Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Gly Asn Leu Asp Ala Ala Asp Val Thr Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe
35 40 45

Phe Ile Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Val Asp Ser Trp Thr Gly Pro Gly Thr Gly Glu Ser
85 90 95

Pro Thr Glu Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu
100 105 110

Ile Cys Glu Phe Tyr Leu Ile Leu Ala Ala Ala Thr Asn Val Ala Gly
115 120 125

Ser Leu Phe Lys Lys Leu Leu Val Gly Ser Leu Val Met Leu Ile Ala
130 135 140

Gly Tyr Met Gly Glu Ser Gly Asn Ala Asn Val Met Ile Ala Phe Val
145 150 155 160

Val Gly Cys Leu Ala Trp Leu Tyr Met Ile Tyr Glu Leu Trp Ala Gly
165 170 175

Glu Gly Lys Ala Ala Cys Asn Thr Ala Ser Pro Ala Val Gln Ser Ala
180 185 190

Tyr Asn Thr Met Met Trp Ile Ile Ile Val Gly Trp Ala Ile Tyr Pro
195 200 205

Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly Gly Glu Ser Val Tyr Ala
210 215 220

Ser Asn Leu Asn Leu Ile Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile
225 230 235 240

Leu Phe Gly Leu Ile Ile Trp His Val Ala Val Lys Glu Ser Ser Asn
Page 106

Ala

<210> 128
<211> 772
<212> DNA
<213> Marine eubacteria

<400> 128
atgggtaaat tattagtgat gttaggtagt gttattgcac ttccatcctt tgcagctggt 60
ggaggtaact tagatgcagc tgatgtaact ggtgtatctt tttggctagt tactgcggct 120
ttacttgctt caacagtatt cttttttatt gaaagagata gagtttctgc aaaatggaag 180
acatcactaa cagtatctgg tttagttact ggtattgcat tttggcatta cttttatatg 240
agaggcgttt ggggttgattc ttggactggt ccaggaaccg gagaatctcc aactgaattt 300
agatatattg attggttact aacagtacct ttattaattt gtgagtttta tctaataatta 360
gctgctgcaa caaatgttgc tggttcatta ttcaaaaaat tattagttgg ttcattgggtc 420
atgcttattg caggatacat gggatgaatct ggtaatgcca atgtgatgat tgcattcgta 480
gttgatgct tagcatggtt gtatatgata tatgaattgt gggctggtga aggtaaagca 540
gcttgcaata cagcaagccc tgctgttcaa tcagcataca atacaatgat gtggatcatt 600
attgtaggtt gggctatata tcctgctgga tatgctgctg gctatttgat ggggtggagaa 660
agcgtttatg cttctaacct taacctgata tataaccttg ctgactttgt taacaagatt 720
ttatttggtt taatcatttg gcatgttgct gttaaagaat cttctaatagc ta 772

<210> 129
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 129

Met Gly Lys Leu Leu Val Met Leu Gly Gly Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Asp Thr Gly Gly Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala
130 135 140

Gly Leu Ala Pro Ala Leu Pro Ala Phe Ile Leu Gly Met Ala Gly Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met
180 185 190

Ile Ile Val Phe Gly Trp Ser Ile Tyr Pro Leu Gly Tyr Val Ala Gly
195 200 205

Tyr Leu Met Gly Ala Val Asp Pro Ser Thr Leu Asn Leu Ile Tyr Asn
210 215 220

Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp His
225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
245

<210> 130

<211> 748

<212> DNA

<213> Marine eubacteria

<400> 130

atgggtaaat tattagtgat gttaggtggt gttattgcac ttccttcttt tgctgctggt 60

ggtggtgatc tagatatagg agactccgtt ggagtttcat tctggcttgt tactgctgct 120

atgttagctg ctactgtttt cttttttgtt gaaagagacc aagtaagcgc aaagtggaaa 180

acatcattaa cagtatcagg tttaattact ggtattgctt ttggcatta tctttacatg 240

agaggtgtat ggatagatac aggtggaagc ccaacagtat ttagatatat tgattggttg 300

ctaactgttc cattacaaat ggttgagttt tatttaattc ttgcagcttg tactaatgta 360
gctgggttcatt tatttaagaa actgcttggtt ggttcattag taatgttagg tgctggattt 420
gctgggtgaag ctggactagc tcctgcattg cctgctttca tacttggtat ggctggatgg 480
gtatacatga tatatgagct gtatatgggt gaaggtaaag ctgcggtgag tactgctagt 540
cctgccgtaa attctgctta caatgcaatg atgatgatta tagtttttgg ttggtctatt 600
tatccactgg gatatgttgc tggctattta atgggtgcag tagatccaag tacattaaat 660
ctaataataca accttgctga ttttattaat aagattttat tcggtttaat aatctggcat 720
gttgctgtta aagaatcttc taatgcta 748

<210> 131
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 131

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65 70 75 80

Arg Gly Val Trp Ile Asp Thr Gly Gly Ser Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Val Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala
130 135 140

Gly Leu Ala Pro Ala Leu Pro Ala Phe Ile Leu Gly Met Ala Gly Trp
145 150 155 160

Val Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
 165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met
 180 185 190

Ile Ile Val Phe Gly Trp Ser Ile Tyr Pro Leu Gly Tyr Val Ala Gly
 195 200 205

Tyr Leu Met Gly Ala Val Asp Pro Ser Thr Leu Asn Leu Ile Tyr Asn
 210 215 220

Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp His
 225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
 245

<210> 132
 <211> 748
 <212> DNA
 <213> Marine eubacteria

<400> 132
 atgggtaaat tattaatgat cttagggtggt gttattgcac ttccttcttt tgctgctggt 60
 ggtgggtgatc tagatatagg agactctgtt ggagtttcat tctggcttgt tactgctgct 120
 atgttagctg ctactgtttt cttttttgtt gaaagagacc aagtaagcgc aaagtggaaa 180
 acatcattaa cagtatcagg tttaattact ggtattgctt tttggcatta tctttacatg 240
 agaggtgtat ggatagatac aggtggaagc ccaacagtat ttagatatat tgattgggtg 300
 ctaactgttc cattacaaat gggtgagttt tatttaattc ttgcagcttg tactaatgta 360
 gctggttcat tatttaagaa actgcttggt gggttcattag taatgttagg tgctggattt 420
 gctgggtgaag ctggattagc tcctgcattg cctgctttca tacttggtat ggctggatgg 480
 gtatacatga tatatgagct gtatatgggt gaaggtaaag ctgcggtgag tactgctagt 540
 cctgccgtaa attctgctta caatgcaatg atgatgatta tagtttttgg ttggtctatt 600
 tatccactgg gatatgttgc tggctattta atgggtgcag tagatccaag tacattaaat 660
 ctaatataca accttgctga ttttattaat aagattttat tcggtttaat aatctggcat 720
 gttgctgtta aagaatcttc taatgcta 748

<210> 133
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 133

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Gly Gly Gly Asp Leu Asp Ile Gly Asp Ser Val Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Met Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Val Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Gly Gly Phe Leu Gly Glu Ala
 130 135 140

Gly Met Ile Asp Val Thr Leu Ala Phe Val Ile Gly Met Ala Gly Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val
 165 170 175

Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ser Ile Tyr Pro Ala Gly Tyr Val Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Ile Asn Lys Ile Leu Phe Gly Leu Ile Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 134
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 134
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 ggtggtgatc tagatatagg agactctggt ggagtttcat tctggcttgt tactgctgct 120
 atgttagctg ctactgtttt cttttttggt gaaagagacc aagtaagcgc aaaatggaaa 180
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 cctgccgtaa attctgctta caatgcaatg atgcttatta ttgttggtgg ttggtcaatc 600
 tatcctgctg gatatgttgc tggctatctt atgggcggtg aaggagtata tgcctcaaat 660
 ctaaacttaa tatataacct tgctgatttt atcaacaaga ttctatttgg ttttaattata 720
 tggcatgttg ctgttaaaga atcttctaata gcta 754

<210> 135
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 135

Met Gly Lys Gln Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
115 120 125

Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 136

<211> 754

<212> DNA

<213> Marine eubacteria

<400> 136

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ctcttagctg ctactgtttt cttttttggt gaaagagatc aagtaagtgc taaatggaaa 180

acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctttatatg 240

agaggtgtgt ggatcgaaac tggtgaaacg ccaacagtat ttagatatat tgattggttg 300

ctaactgttc ctttgctaata ggttgagttc tacttaatcc ttgcagcgtg cacaaatggt 360

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 tggcatgttg ctgttaaaga atcttcta at gcta 754

<210> 137
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 137

Met Gly Lys Leu Leu Met Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
 145 150 155 160

Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
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165

170

175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 138
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 138
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 taccggctg gatatgctgc tggataccta atgggtggtg atggcgtata tgctcagaat 660
 ttaaacgtta tatataatct tgctgacttt gttaacaaga ttttatttgg tttagttatc 720
 tggcatgtcg ctgttaaaga atcttctaata gcta 754

<210> 139
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 139

Met Gly Lys Leu Leu Val Ile Leu Gly Gly Val Ile Ala Leu Pro Pro
 1 5 10 15
 Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30
 Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45
 Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60
 Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80
 Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95
 Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110
 Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125
 Leu Gly Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140
 Gly Ser Leu Pro Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp
 145 150 155 160
 Phe Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175
 Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190
 Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205
 Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220
 Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240
 Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 140
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 140
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 ggtggcgatc ttgattctag tgatcttact ggagtatctt tttggcttgt tactgctgct 120
 ctcttagctg ctactgtttt cttttttgtt gaaagagatc aagtaagtgc taaatggaaa 180
 acatcactta cagtttcttg tttagttact ggtattgcat tctggcatta tctctatatg 240
 agaggtgtgt ggatcgaaac tggtgaaacg ccaacagtat ttagatatat tgattggttg 300
 ctaactgttc cgttactaat ggttgagttc tacttaattc ttgcagcttg cacaaatggt 360
 gcgggctcat tatttaagaa actactaggt ggttcgcttg taatgcttat tgcaggatat 420
 atgggtgagt ctggaagtct tccagtattg cctgcattca ttgttggatg cctagcatgg 480
 ttctacatga tttatgaact atatgctggt gaaggtaagg ctgcagttac tactgctagt 540
 cctgctgtta tgtctgcata caatactatg atgttgatta tcgtagtagg ttgggcaatt 600
 taccggctg gatatgctgc tggataccta atgggtggtg atggcgata tgctcagaat 660
 ttaaacgtta tatataatct tgctgacttt gttaacaaga ttttatttgg tttagttatc 720
 tggcatgtcg ctgttaaaga atcttctaata gcta 754

<210> 141
 <211> 247
 <212> PRT
 <213> Marine eubacteria

<400> 141

Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser Phe Ala Ala Ser
 1 5 10 15

Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val Ser Phe Trp Leu
 20 25 30

Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe Phe Val Glu Arg
 35 40 45

Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val Ser Gly Leu
 50 55 60

Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met Arg Gly Val Trp
 65 70 75 80

Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr Ile Asp Trp Leu
 85 90 95

Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu Ile Leu Ala Ala
100 105 110

Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu Gly Gly Ser
115 120 125

Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser Gly Ser Leu Pro
130 135 140

Val Leu Pro Ala Phe Ile Val Gly Cys Leu Ala Trp Phe Tyr Met Ile
145 150 155 160

Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val Thr Thr Ala Ser
165 170 175

Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu Ile Ile Val Val
180 185 190

Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly Tyr Leu Met Gly
195 200 205

Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile Tyr Asn Leu Ala
210 215 220

Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile Trp His Val Ala
225 230 235 240

Val Lys Glu Ser Ser Asn Ala
245

<210> 142

<211> 742

<212> DNA

<213> Marine eubacteria

<400> 142

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actgttttct tttttgttga aagagatcaa gtaagtgcta aatggaaaac atcacttaca 180

gtttctgggt tagttactgg tattgcattc tggcattatc tttatatgag aggtgtgtgg 240

atcgaaactg gtgaaacgcc aacagtattt agatatattg attggttgct aactgttcct 300

ttgctaattg ttgagttcta cttaatcctt gcagcgtgca caaatgttgc ggggttcatta 360

tttaagaaac tacttggtgg ttcgcttgta atgcttattg caggatatat ggggtgagtct 420

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tatgaactat atgctggtga aggtaaggct gcagttacta ctgctagtcc tgctggtatg 540
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 tatgctgctg gttacctaata ggggtggtgat ggcgtatatg ctcagaattt aaacgttata 660
 tataaccttg ctgactttgt taacaagatt ttatttggtt tagttatctg gcatgttgct 720
 gttaaagaat cttctaatagc ta 742

<210> 143
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 143

Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 144
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 144
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 acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg 240
 agagggtgtgt ggatcgaaac cggtgaaaca ccaacagtat ttagatatat tgattgggtg 300
 ctaactgttc cgttactaat gggtgagttc tacttaatcc tcgcagcttg cactaatgtt 360
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 ttatacatga tttatgaact atatgctggt gaaggtaagg ctgcagttac tactgctagt 540
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 taccagctg gatatgctgc tggttactta atgggtggag atggcgtata tgctcagaat 660
 ttaaacgtta tatataacct tgctgacttt gttaacaaga ttttatttgg tttagttatc 720
 tggcatgttg ctgttaaaga atcttctaata gcta 754

<210> 145
 <211> 250
 <212> PRT
 <213> Marine eubacteria

<400> 145

Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn
 245 250

<210> 146
 <211> 751

<212> DNA

<213> Marine eubacteria

<400> 146

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ctcttagctg ctactgtttt cttttttggt gaaagagatc aagtaagcgc taaatggaaa      180
acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg      240
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ctaactgttc cgttactaat ggttgagttc tacttaatcc tcgcagcttg cactaatggt      360
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ttatacatga tttatgaact atatgctggt gaaggtaagg ctgcagttac tactgctagt      540
cctgctgtta tgtctgcata caatactatg atgttgatta tcgtagtagg ttgggcaata      600
taccagctg gatatgctgc tggttactta atgggtggag atggcgtata tgctcagaat      660
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<210> 147

<211> 251

<212> PRT

<213> Marine eubacteria

<400> 147

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Met Gly Lys Leu Leu Leu Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
1          5          10          15

```

```

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
20          25          30

```

```

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
35          40          45

```

```

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
50          55          60

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```

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
65          70          75          80

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```

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
85          90          95

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Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
Page 122

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100

105

110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Ser Leu Pro Val Leu Pro Ala Phe Leu Val Gly Cys Ala Ala Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 148
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 148
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 acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg 240
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 tggcatgttg ctgttaaaga atcttctaata gcta 754

<210> 149
 <211> 251
 <212> PRT
 <213> Marine eubacteria

<400> 149

Met Gly Lys Arg Leu Val Ile Leu Gly Gly Val Ile Ala Leu Pro Ser
 1 5 10 15

Phe Ala Ala Ser Gly Gly Asp Leu Asp Ser Ser Asp Leu Thr Gly Val
 20 25 30

Ser Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ala Thr Val Phe Phe
 35 40 45

Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr
 50 55 60

Val Ser Gly Leu Val Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met
 65 70 75 80

Arg Gly Val Trp Ile Glu Thr Gly Glu Thr Pro Thr Val Phe Arg Tyr
 85 90 95

Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Val Glu Phe Tyr Leu
 100 105 110

Ile Leu Ala Ala Cys Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu
 115 120 125

Leu Ile Gly Ser Leu Val Met Leu Ile Ala Gly Tyr Met Gly Glu Ser
 130 135 140

Gly Asn Leu Pro Val Leu Pro Ala Phe Leu Ile Gly Cys Ala Ala Trp
 145 150 155 160

Leu Tyr Met Ile Tyr Glu Leu Tyr Ala Gly Glu Gly Lys Ala Ala Val
 165 170 175

Thr Thr Ala Ser Pro Ala Val Met Ser Ala Tyr Asn Thr Met Met Leu
 180 185 190

Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly
 195 200 205

Tyr Leu Met Gly Gly Asp Gly Val Tyr Ala Gln Asn Leu Asn Val Ile
 210 215 220

Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Val Ile
 225 230 235 240

Trp His Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 150
 <211> 754
 <212> DNA
 <213> Marine eubacteria

<400> 150
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 ctcttagctg ctactgtttt cttttttggt gaaagagatc aagtaagcgc taaatggaaa 180
 acatcactta cagtttctgg tttagttact ggtattgcat tctggcatta tctctatatg 240
 agaggtgtgt ggatcgaaac cggtgaaaca ccaacagtat ttagatatat tgattggttg 300
 ctaactgttc cgttactaat ggttgagttc tacttaatcc tcgcagcttg cactaatggt 360
 gcaggttcat tattaagaa actactaatt ggttcgcttg taatgcttat tgcaggatat 420
 atgggtgagt ctggaaatct tccagtattg cctgcattcc ttattgggtg cgcagcatgg 480
 ttatacatga tttatgaact atatgctggt gaaggtaagg ctgcagttac tactgctagt 540
 cctgctgtta tgtctgcata caatactatg atgttgatta tcgtagtagg ttgggcaata 600
 taccagctg gatatgctgc tggttactta atgggtggag atggcgtata tgctcagaat 660
 ttaaacgtta tatataacct tgctgacttt gttaacaaga ttttatttgg tttagttatc 720
 tggcatgttg ctgttaaaga atcttctaata gcta 754

<210> 151
 <211> 254
 <212> PRT
 <213> Marine eubacteria

<400> 151

Ser Lys Lys Leu Leu Ala Thr Phe Leu Val Val Thr Ser Ile Pro Ala
 1 5 10 15

Ile Ala Leu Ala Gly Gly His Ser Ser Gly Gly Leu Ala Gly Asp Asp
 20 25 30

Cys Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser
 35 40 45
 Thr Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys
 50 55 60
 Thr Ser Leu Thr Val Ser Ala Leu Met Thr Leu Ile Ala Ala Val His
 65 70 75 80
 Tyr Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr
 85 90 95
 Val Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile
 100 105 110
 Glu Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile
 115 120 125
 Phe Trp Arg Leu Leu Val Gly Thr Val Ile Met Leu Val Gly Gly Tyr
 130 135 140
 Leu Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly
 145 150 155 160
 Met Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala
 165 170 175
 Ser Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe
 180 185 190
 Gly Ala Leu Arg Leu Ile Val Thr Ile Gly Trp Ala Ile Tyr Pro Leu
 195 200 205
 Gly Tyr Phe Leu Gly Tyr Leu Gly Gly Gly Ala Asp Pro Ala Thr Leu
 210 215 220
 Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
 225 230 235 240
 Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 152
 <211> 763
 <212> DNA
 <213> Marine eubacteria

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<400> 152
agcaagaaac ttcttgcgac atttctagta gtaacatcaa taccagcaat agcattagct 60
ggtgggcatt catctggtgg tttagcagga gatgactgcg taggtgttac tttctggatt 120
atctctatgg ctatggttgc ttcaacagta ttctttattg ttgagcgtga cagagttagt 180
gcgaaatgga aaacatcatt aacagtatca gcgcttatga ctttaatcgc agctgttcac 240
tatttctaca tgagagatgt ttgggtagca actggcgaat caccaacagt ctttagatat 300
atagattggt tgtaacagt tccacttcta atgattgagt tctactttat cttagcagcg 360
gttacaactg tatcttcagg aattttctgg agattactag taggtactgt aataatgcta 420
gtaggtggat acttaggtga agctggaatg atttcggtaa tgacaggttt cattataggg 480
atgatagggt ggctatacat tctttatgaa atctttgcag gtgaagctag caaagcaa 540
gcttctagtg gaagtgcagc ttgtcaaaca gcctttggag ctttacgttt aatcgtaacc 600
attggttggg caatttatcc gctaggatat ttcttaggtt atctaggcgg tggggcagac 660
ccagctacat taaacattgt ttacaactta gctgactttg taaacaaaat tgcttttggt 720
ttaattatat gggcagcagc tggttaaagaa tcttctaattg cta 763

```

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<210> 153
<211> 254
<212> PRT
<213> Marine eubacteria

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<400> 153

```

Ser Lys Lys Leu Leu Ala Thr Phe Leu Val Val Thr Ser Ile Pro Ala
1          5          10          15

```

```

Ile Ala Leu Ala Gly Gly His Ser Ser Gly Gly Leu Ala Gly Asp Asp
20          25          30

```

```

Tyr Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser
35          40          45

```

```

Thr Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys
50          55          60

```

```

Thr Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His
65          70          75          80

```

```

Tyr Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr
85          90          95

```

```

Val Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile
100          105          110

```

Glu Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile
 115 120 125

Phe Trp Arg Leu Leu Val Gly Thr Val Ile Met Leu Val Gly Gly Tyr
 130 135 140

Leu Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly
 145 150 155 160

Met Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala
 165 170 175

Ser Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe
 180 185 190

Gly Ala Leu Arg Leu Ile Val Thr Ile Gly Trp Ala Ile Tyr Pro Leu
 195 200 205

Gly Tyr Phe Leu Gly Tyr Leu Gly Gly Gly Ala Asp Pro Ala Thr Leu
 210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
 225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 154
 <211> 763
 <212> DNA
 <213> Marine eubacteria

<400> 154
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 ggtgggcatt catctggtgg tttagcagga gatgactacg taggtgttac tttctggatt 120
 atttctatgg ctatggttgc ttcaacagta ttctttattg ttgagcgtga cagagttagt 180
 gcgaaatgga aaacatcatt aacagtatca gcgcttgtga ctttaatcgc agctgttcac 240
 tatttctaca tgagagatgt ttgggtagca actggcgaat caccaacagt ctttagatat 300
 atagattggt tgttaacagt tccacttcta atgattgagt tctactttat cttagcagcg 360
 gttacaactg tatcttcagg aattttctgg agattactag taggtactgt aataatgcta 420
 gtaggtggat acttaggtga agctggaatg atttcggtaa tgacaggttt cattataggg 480
 atgataggtt ggctatacat tctttatgaa atctttgcag gtgaagctag caaagcaa 540
 gcttctagtg gaagtgcagc ttgtcaaaca gcctttggag ctttacgttt aatcgttaacc 600
 attggttggg caatttatcc gctaggatat ttcttaggtt atctaggcgg tggggcagac 660

ccagctacat taaacattgt ttacaactta gctgactttg taaacaaaat tgcttttggg 720
 ttaattatat gggcagcagc tggttaaagaa tcttctaata cta 763

<210> 155
 <211> 254
 <212> PRT
 <213> Marine eubacteria
 <400> 155

Ser Lys Lys Phe Phe Ser Thr Leu Leu Leu Val Thr Ser Leu Pro Thr
 1 5 10 15

Leu Ala Leu Ala Gly Gly His Ser Ser Gly Leu Ala Gly Asp Asp Tyr
 20 25 30

Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser Thr
 35 40 45

Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ser Lys Trp Lys Thr
 50 55 60

Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His Tyr
 65 70 75 80

Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr Val
 85 90 95

Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile Glu
 100 105 110

Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile Phe
 115 120 125

Trp Arg Leu Leu Ile Gly Thr Val Val Met Leu Val Gly Gly Tyr Met
 130 135 140

Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly Met
 145 150 155 160

Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala Ser
 165 170 175

Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe Gly
 180 185 190

Ala Leu Arg Leu Ile Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly
 195 200 205

Tyr Phe Val Gly Tyr Leu Thr Gly Gly Gly Ala Asp Ala Ala Thr Leu
 210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
 225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 156
 <211> 763
 <212> DNA
 <213> Marine eubacteria

<400> 156
 agcaaaaagt ttttttcgac gcttctatta gtaacatcct tgccaacttt agcttttagca 60
 ggtgggcatt catctggtct tgctggagat gactatgtag gtgttacttt ctggattatt 120
 tccatggcta tggttgcgtc aacagtatatt ttcattgtgg agcgtgacag agttagctca 180
 aaatggaaaa catcattaac agtatcagct ttggttacat taattgctgc agtgcattat 240
 ttttatatga gagatgtatg ggtagcaact ggtgaatcac caacagtatt tagatatata 300
 gattggttat taacagtgcc actattaatg attgagttct actttatttt agcagcggtta 360
 actacagttt cttcaggaat attctggaga ctattaattg gtacagttgt aatgctagta 420
 ggtgggtata tgggtgaagc tggaatgatc tcagtgatga caggtttcat tatcgggatg 480
 atcggttggc tatatattct ttacgaaatc tttgctggtg aagctagtaa agcaaacgct 540
 tctagtggaa gcgcagcatg ccaaacagca tttggtgcgt tacgtttaat cgttacagtt 600
 gggtgggcga tctatccaat aggatacttc gtaggctatc taactggtgg tggtgcagac 660
 gcagctacac taaacatagt ttacaactta gctgattttg taaacaaaat tgcctttggt 720
 ttaatcatat gggcagcagc tggttaaagaa tcttctaattg cta 763

<210> 157
 <211> 254
 <212> PRT
 <213> Marine eubacteria

<400> 157

Ser Lys Lys Phe Phe Ser Thr Leu Leu Val Thr Ser Leu Pro Thr
 1 5 10 15

Leu Ala Leu Ala Gly Gly His Ser Ser Gly Leu Ala Gly Asp Asp Tyr
 20 25 30

Val Gly Val Thr Phe Trp Ile Ile Ser Met Ala Met Val Ala Ser Thr
 Page 130

35

Val Phe Phe Ile Val Glu Arg Asp Arg Val Ser Ser Lys Trp Lys Thr
50 55 60

Ser Leu Thr Val Ser Ala Leu Val Thr Leu Ile Ala Ala Val His Tyr
65 70 75 80

Phe Tyr Met Arg Asp Val Trp Val Ala Thr Gly Glu Ser Pro Thr Val
85 90 95

Phe Arg Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Leu Met Ile Glu
100 105 110

Phe Tyr Phe Ile Leu Ala Ala Val Thr Thr Val Ser Ser Gly Ile Phe
115 120 125

Trp Arg Leu Leu Ile Gly Thr Val Val Met Leu Val Gly Gly Tyr Met
130 135 140

Gly Glu Ala Gly Met Ile Ser Val Met Thr Gly Phe Ile Ile Gly Met
145 150 155 160

Ile Gly Trp Leu Tyr Ile Leu Tyr Glu Ile Phe Ala Gly Glu Ala Ser
165 170 175

Lys Ala Asn Ala Ser Ser Gly Ser Ala Ala Cys Gln Thr Ala Phe Gly
180 185 190

Ala Leu Arg Leu Ile Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly
195 200 205

Tyr Phe Val Gly Tyr Leu Thr Gly Gly Gly Ala Asp Ala Ala Thr Leu
210 215 220

Asn Ile Val Tyr Asn Leu Ala Asp Phe Val Asn Lys Ile Ala Phe Gly
225 230 235 240

Leu Ile Ile Trp Ala Ala Ala Val Lys Glu Ser Ser Asn Ala
245 250

<210> 158

<211> 763

<212> DNA

<213> Marine eubacteria

<400> 158

agcaaaaagt ttttttcgac gcttctatta gtaacatcct tgccaacttt agcttttagca

60

02716.0005.NPUS01.ST25.txt

gggtgggcatt catctggtct tgctggagat gactatgtag gtgttacttt ctggattatt 120
tccatggcta tgggtgcgtc aacagtatct ttcattgtgg agcgtgacag agttagctca 180
aaatggaaaa catcattaac agtatcagct ttggttacat taattgctgc agtgcattat 240
ttttatatga gagatgtatg ggtagcaact ggtgaatcac caacagtatt tagatatata 300
gattgggttat taacagtgcc actattaatg attgagttct actttatctt agcagcggta 360
actacagttt cttcaggaat attctggaga ctattaattg gtacagttgt aatgctagta 420
gggtgggtata tgggtgaagc tggaatgata tcagtgatga caggtttcat tatcgggatg 480
atcggttggc tatatattct ttacgaaatc tttgctggtg aagctagtaa agcaaacgct 540
tctagtggaa ggcgagcatg ccaaacagca tttggtgctg tacgtttaat cgttacagtt 600
ggttgggcca tctatccaat aggatacttc gtaggctatc taactggtgg tgggtgcagac 660
gcagctacac taaacatagt ttacaactta gctgattttg taaacaaaat tgcctttggt 720
ttaatcatat gggcagcagc tggttaaagaa tcttctaattg cta 763

<210> 159
<211> 250
<212> PRT
<213> Marine eubacteria
<400> 159

Met Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro Ser Phe
1 5 10 15

Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly Val Ser
20 25 30

Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe Phe Phe
35 40 45

Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50 55 60

Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr Met Arg
65 70 75 80

Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg Tyr Ile
85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr Leu Ile
100 105 110

Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys Leu Leu
115 120 125

Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu Ala Gly
 130 135 140

Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly Trp Leu
 145 150 155 160

Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala Val Ser
 165 170 175

Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met Met Ile
 180 185 190

Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala Gly Tyr
 195 200 205

Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu Ile Tyr
 210 215 220

Asn Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp
 225 230 235 240

Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 160
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 160
 atgaaattat tattgatctt aggtagtgtt attgcacttc catcatttgc tgctgctggt 60
 ggcgatctag atataagtga tactgttggt gtttcattct ggctggttac agctggatatg 120
 ttagcggcaa ctgtgttctt tttttagaa agagaccaag tcagcgctaa gtggaaaact 180
 tcacttactg tatctggttt aattactggt atagcttttt ggcattatct ctatatgaga 240
 ggtgtttgga tagacactgg tgatacccca acagtattca gatataattga ttggttatta 300
 actgttccat tacaaatggt tgagttctat ctaattcttg ctgcttgtag aagtgttgct 360
 gcttcattat ttaagaagct tctagctggt tcattagtaa tgtaggtgc tggatttgca 420
 ggcgaagctg gattagctcc tgtattacct gctttcatta ttggtatggc tggatggtta 480
 tacatgattt atgagctata tatgggtgaa ggtaaggctg ctgtaagtac tgcaagtcct 540
 gctgttaact ctgcatacaa cgcaatgatg atgattattg ttgttggtat ggcaatttat 600
 cctgctggat atgctgctgg ttacctaatg ggtggcgaag gtgtatacgc ttcaaactta 660
 aaccttatat ataaccttgc tgactttggt aacaagattc tatttggttt gatcatttgg 720

aatgttgcag ttaaagaatc tagtaatgct

750

<210> 161
 <211> 230
 <212> PRT
 <213> Marine eubacteria

<400> 161

Met Lys Val Leu Met Leu Asn Pro Gly Asp His Val Ala Ile Ser Phe
 1 5 10 15

Trp Leu Ile Ser Met Ala Met Val Ala Ala Thr Ala Phe Phe Phe Leu
 20 25 30

Glu Arg Asp Arg Val Ala Ala Lys Trp Lys Thr Ser Leu Thr Val Ala
 35 40 45

Gly Leu Val Thr Gly Ile Ala Ala Trp His Tyr Phe Tyr Met Arg Gly
 50 55 60

Val Trp Val Ala Thr Gly Asp Ser Pro Thr Val Leu Arg Tyr Ile Asp
 65 70 75 80

Trp Leu Ile Thr Val Pro Leu Gln Ile Val Glu Phe Tyr Val Ile Leu
 85 90 95

Ala Ala Met Thr Ala Val Ala Ser Ser Leu Phe Trp Arg Leu Leu Ile
 100 105 110

Ala Ser Ile Ile Met Leu Val Phe Gly Tyr Met Gly Glu Thr Gly Ala
 115 120 125

Met Asn Val Thr Leu Ala Phe Val Ile Gly Met Ala Gly Trp Leu Tyr
 130 135 140

Ile Ile Tyr Glu Val Phe Ala Gly Glu Ala Ser Lys Ala Ser Ala Gly
 145 150 155 160

Ser Gly Asn Ala Ala Gly Gln Thr Ala Phe Asn Ala Leu Arg Leu Ile
 165 170 175

Val Thr Val Gly Trp Ala Ile Tyr Pro Ile Gly Tyr Ala Val Gly Tyr
 180 185 190

Phe Gly Gly Gly Val Asp Ala Gly Ser Leu Asn Leu Ile Tyr Asn Leu
 195 200 205

Ala Asp Phe Val Asn Lys Ile Ala Phe Gly Met Ala Ile Tyr Val Ala
 Page 134

210

02716.0005.NPUS01.ST25.txt
215 220Ala Val Ser Asp Ser Asn
225 230<210> 162
<211> 690
<212> DNA
<213> Marine eubacteria

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<400> 162
atgaaagtat taatgctaaa tcccggagat cacgttgcga tttcgttttg gttgatctct 60
atggccatgg ttgccgctac tgctttcttc tttcttgaaa gagatcgtgt agcagctaaa 120
tggaacacgt cccttacagt agctggttta gttactggta ttgcggcgtg gcactacttc 180
tacatgagag gcgtatgggt tgctactggg gactcaccaa ctgtccttcg ttacattgac 240
tggttgatta ctgtgcctct acaaatcgta gaattctacg taattcttgc agcgatgact 300
gctgttgctt caagcctttt ctggagacta ttaattgcat caattattat gcttgtcttt 360
ggttacatgg gtgaaactgg agcgatgaat gtaactctag ccttcgtaat aggtatggct 420
ggatggttat acatcatcta cgaggttttt gcagggtgaag caagcaaggc aagtgcgtgt 480
agtggaaacg ctgctgggtc gactgcattt aacgcattga gattaattgt tacagtagga 540
tgggcaattt atccaattgg ttatgctgta gggtacttcg gtgggtggcgt agacgccggt 600
tcattgaact taatctataa ccttgcagac tttgttaata aaattgcatt tggatatggct 660
atztatgtag ctgcagtatc agacagcaac 690

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<210> 163
<211> 249
<212> PRT
<213> Marine eubacteria

<400> 163

Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
1 5 10 15Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
20 25 30Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
35 40 45Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50 55 60Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Lys Tyr Met Tyr Met Arg
65 70 75 80

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
85 90 95

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
100 105 110

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
115 120 125

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
130 135 140

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
145 150 155 160

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
245

<210> 164

<211> 750

<212> DNA

<213> Marine eubacteria

<400> 164

atgaaattat tactgatatt aggtagtgtt attgcacttc ctacatttgc tgcaggtggt 60

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ttagcatcta ctgtattttt ctttgttgaa agagatagag tttctgcaa atggaaaaca 180

tcattaactg tatctggtct tgttactggt attgctttct ggaaatacat gtacatgaga 240

ggggatatgga ttgaaactgg tgattcgcca actgtattta gatacattga ttggttacta 300

acagttcctc tattaatatg tgaattctac ttaattcttg ctgctgcaac taatgttgct 360

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ggatcattat ttaagaaatt actagttggt tctcttggtta tgcttgtggt tggttacatg      420
ggtgaagcag gaatcatggc tgcattggcct gcattcatta ttgggtgttt agcttgggta      480
tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaatac tgcaagtcct      540
gctgtgcaat cagcttacia cacaatgatg tatattatca tctttggttg ggcgatttat      600
cctgtagggt atttcacagg ttacctgatg ggtgacggtg gatcagctct taacttaaac      660
cttatctata accttgctga ctttggttaac aagattctat ttggtttaat tatatggaat      720
gttgctgtta aagaatcttc taatgcttaa      750

```

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<210> 165
<211> 249
<212> PRT
<213> Marine eubacteria

```

```

<400> 165

```

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Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
1          5          10          15

```

```

Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
          20          25          30

```

```

Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
          35          40          45

```

```

Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
50          55          60

```

```

Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Asn Tyr Met Tyr Met Arg
65          70          75          80

```

```

Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
          85          90          95

```

```

Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
100          105          110

```

```

Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
115          120          125

```

```

Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
130          135          140

```

```

Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
145          150          155          160

```

Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
 165 170 175

Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
 180 185 190

Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
 195 200 205

Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
 210 215 220

Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
 225 230 235 240

Val Ala Val Lys Glu Ser Ser Asn Ala
 245

<210> 166
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 166
 atgaaattat tactgatatt aggtagtgtt attgcacttc ctacatttgc tgcaggtggt 60
 ggtgaccttg atgctagtga ttacactggt gtttcttttt ggtagttac tgctgcttta 120
 ttagcatcta ctgtattttt ctttgttgaa agagatagag tttctgcaa atggaaaaca 180
 tcattaactg tatctggtct tgttactggt attgctttct ggaattacat gtacatgaga 240
 ggggtatgga ttgaaactgg tgattcgcca actgtattta gatacattga ttggttacta 300
 acagttcctc tattaatatg tgaattctac ttaattcttg ctgctgcaac taatgttgct 360
 ggatcattat ttaagaaatt actagttggt tctcttggtta tgcttggtgt tggttacatg 420
 ggtgaagcag gaatcatggc tgcattggcct gcattcatta ttgggtgttt agcttgggta 480
 tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaatac tgcaagtcct 540
 gctgtgcaat cagcttaca cacaatgatg tatattatca tctttggttg ggcgatttat 600
 cctgtaggtt atttcacagg ttacctgatg ggtgacggtg gatcagctct taacttaaac 660
 cttatctata accttgctga ctttggttaac aagattctat ttggtttaat tatatggaat 720
 gttgctgtta aagaatcttc taatgcttaa 750

<210> 167
 <211> 249
 <212> PRT
 <213> Marine eubacteria

<400> 167

Met Lys Leu Leu Leu Ile Leu Gly Ser Val Ile Ala Leu Pro Thr Phe
 1 5 10 15
 Ala Ala Gly Gly Gly Asp Leu Asp Ala Ser Asp Tyr Thr Gly Val Ser
 20 25 30
 Phe Trp Leu Val Thr Ala Ala Leu Leu Ala Ser Thr Val Phe Phe Phe
 35 40 45
 Val Glu Arg Asp Arg Val Ser Ala Lys Trp Lys Thr Ser Leu Thr Val
 50 55 60
 Ser Gly Leu Val Thr Gly Ile Ala Phe Trp Gln Tyr Met Tyr Met Arg
 65 70 75 80
 Gly Val Trp Ile Glu Thr Gly Asp Ser Pro Thr Val Phe Arg Tyr Ile
 85 90 95
 Asp Trp Leu Leu Thr Val Pro Leu Leu Ile Cys Glu Phe Tyr Leu Ile
 100 105 110
 Leu Ala Ala Ala Thr Asn Val Ala Gly Ser Leu Phe Lys Lys Leu Leu
 115 120 125
 Val Gly Ser Leu Val Met Leu Val Phe Gly Tyr Met Gly Glu Ala Gly
 130 135 140
 Ile Met Ala Ala Trp Pro Ala Phe Ile Ile Gly Cys Leu Ala Trp Val
 145 150 155 160
 Tyr Met Ile Tyr Glu Leu Trp Ala Gly Glu Gly Lys Ser Ala Cys Asn
 165 170 175
 Thr Ala Ser Pro Ala Val Gln Ser Ala Tyr Asn Thr Met Met Tyr Ile
 180 185 190
 Ile Ile Phe Gly Trp Ala Ile Tyr Pro Val Gly Tyr Phe Thr Gly Tyr
 195 200 205
 Leu Met Gly Asp Gly Gly Ser Ala Leu Asn Leu Asn Leu Ile Tyr Asn
 210 215 220
 Leu Ala Asp Phe Val Asn Lys Ile Leu Phe Gly Leu Ile Ile Trp Asn
 225 230 235 240
 Val Ala Val Lys Glu Ser Ser Asn Ala
 245

<210> 168
 <211> 750
 <212> DNA
 <213> Marine eubacteria

<400> 168
 atgaaattat tactgatatt aggtagtgtt attgcacttc ctacatttgc tgcaggtggt 60
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 ttagcatcta ctgtattttt ctttggtgaa agagatagag tttctgcaaa atggaaaaca 180
 tcattaactg tatctggtct tgttactggt attgctttct ggcagtacat gtacatgaga 240
 ggggtatgga ttgaaactgg tgattcgcca actgtattta gatacattga ttggttacta 300
 acagttcctc tattaatatg tgaattctac ttaattcttg ctgctgcaac taatgttgct 360
 ggatcattat ttaagaaatt actagttggt tctcttggtt tgcttggtt ttggttacatg 420
 ggtgaagcag gaatcatggc tgcatggcct gcattcatta ttgggtgttt agcttgggta 480
 tacatgattt atgaattatg ggctggagaa ggaaaatctg catgtaatac tgcaagtcct 540
 gctgtgcaat cagcttaca cacaatgatg tatattatca tctttggttg ggcgatttat 600
 cctgtagggt atttcacagg ttacctgatg ggtgacggtg gatcagctct taacttaaac 660
 cttatctata accttgctga ctttggttaac aagattctat ttggtttaat tatatggaat 720
 gttgctgtta aagaatcttc taatgcttaa 750

<210> 169
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 169

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Lys Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 Page 140

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 170

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 170

accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct 60

gctggtggcg atctagatat aagtgatact gttggtgttt cattctggct ggttacagct 120

ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180

aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttgga atattcttat 240

atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300

ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360

gttgctgctt cattatttaa gaagcttcta gctggttcac tagtaatgtt aggtgctgga 420

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tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
atttatcctg ctggatatgc tgctgggttac ctaatgggtg gcgaagggtgt atacgcttca 660
aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt tggtttgatc 720
atttggaatg ttgctgttaa agaatcttct aatgct 756

```

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<210> 171
<211> 252
<212> PRT
<213> Marine eubacteria
<400> 171

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Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1          5          10         15

```

```

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
20         25         30

```

```

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
35         40         45

```

```

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
50         55         60

```

```

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Asn Tyr Leu Tyr
65         70         75         80

```

```

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
85         90         95

```

```

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
100        105        110

```

```

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
115        120        125

```

```

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
130        135        140

```

```

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
145        150        155        160

```

```

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
165        170        175

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Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 172
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 172
 accatgggta aattattact gatattaggt agtgctattg cacttccatc, atttgctgct 60
 gctgggtggcg atctagatat aagtgatact gttgggtgttt cattctggct gggttacagct 120
 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttgga ttatctctat 240
 atgagaggtg tttggataga cactgggtgat accccaacag tattcagata tattgattgg 300
 ttattaactg ttccattaca aatgggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattatttaa gaagcttcta gctgggtcat tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
 atttatcctg ctggatatgc tgctgggttac ctaatgggtg gcgaagggtg atacgcttca 660
 aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt, tggtttgatc 720
 atttggaatg ttgctgttaa agaattctct aatgct 756

<210> 173
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 173

Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30
 Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45
 Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60
 Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Gln Tyr Leu Tyr
 65 70 75 80
 Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95
 Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110
 Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125
 Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140
 Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160
 Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175
 Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190
 Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205
 Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220
 Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240
 Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 174

<211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 174
 accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct 60
 gctggtggcg atctagatat aagtgatact gttggtgttt cattctggct ggttacagct 120
 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggca gtatctctat 240
 atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300
 ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattatttaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
 atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtg atacgcttca 660
 aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaatcttct aatgct 756

<210> 175
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 175
 Thr Met Gly Lys Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15
 Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30
 Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45
 Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60
 Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Glu Tyr Leu Tyr
 65 70 75 80
 Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 176

<211> 756

<212> DNA

<213> Marine eubacteria

<400> 176

accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct 60

gctgggtggcg atctagatat aagtgatact gttgggtgttt cattctggct gggtacagct 120

ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180

aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggga atatctctat 240

atgagaggtg tttggataga cactgggtgat accccaacag tattcagata tattgattgg 300

ttattaactg ttccattaca aatgggttgag ttctatctaa ttcttgctgc ttgtacaagt 360

gttgctgctt cattatttaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420

tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480

tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540

agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
 atttatacctg ctggatatgc tgctgggttac ctaatgggtg gcgaagggtg atacgcttca 660
 aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaattcttct aatgct 756

<210> 177
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 177

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp Trp Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Arg
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 178
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 178
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 gctggtggcg atctagatat aagtgatact gttggtgttt cattctggct ggttacagct 120
 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggtg gtatctctat 240
 atgagaggtg tttggataga cactggtgat accccaacag tattcagata tattgattgg 300
 ttattaactg ttccattaca aatgggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattatttaa gaagcttcta gctggttcat tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
 atttatcctg ctggatatgc tgctggttac ctaatgggtg gcgaagggtg atacgcttca 660
 aacttaaacc ttatatataa ctttgccgac cttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaattcttct aatgct 756

<210> 179
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 179

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 Page 148

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45
 Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60
 Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80
 Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Ala
 85 90 95
 Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110
 Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125
 Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140
 Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160
 Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175
 Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190
 Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205
 Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220
 Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240
 Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 180
 <211> 756
 <212> DNA
 <213> Marine eubacteria

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<400> 180
accatgggta aattattact gatattaggt agtgctattg cacttccatc atttgctgct 60
gctggtggcg atctagatat aagtgatact gttggtgttt cattctggct gggtacagct 120
gggatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggca ttatctctat 240
atgagagggtg tttggataga cactgggtgat accccaacag tattcgcata tattgattgg 300
ttattaactg ttccattaca aatgggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
gttgctgctt cattatttaa gaagcttcta gctgggtcat tagtaatgtt aggtgctgga 420
tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600
atttatcctg ctggatatgc tgctgggttac ctaatgggtg gcgaagggtg atacgcttca 660
aacttaaacc ttatatataa cttgcccac cttgttaaca agattctatt tggtttgatc 720
atttgaatg ttgctgttaa agaattctct aatgct 756

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<210> 181
<211> 252
<212> PRT
<213> Marine eubacteria

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<400> 181

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Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
1          5          10          15

```

```

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
          20          25          30

```

```

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
          35          40          45

```

```

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
          50          55          60

```

```

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
65          70          75          80

```

```

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Glu
          85          90          95

```

```

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
          100          105          110

```

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 195 200 205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 182
 <211> 756
 <212> DNA
 <213> Marine eubacteria

<400> 182
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 gctggtggcg atctagatat aagtgatact gttggtgttt cattctggct gggtacagct 120
 ggtatgttag cggcaactgt gttctttttt gtagaaagag accaagtcag cgctaagtgg 180
 aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggca ttatctctat 240
 atgagaggtg tttggataga cactggtgat accccaacag tattcgaata tattgattgg 300
 ttattaactg ttccattaca aatggttgag ttctatctaa ttcttgctgc ttgtacaagt 360
 gttgctgctt cattatttaa gaagcttcta gctggttcac tagtaatgtt aggtgctgga 420
 tttgcaggcg aagctggatt agctcctgta ttacctgctt tcattattgg tatggctgga 480
 tggttataca tgatttatga gctatatatg ggtgaaggta aggctgctgt aagtactgca 540
 agtcctgctg ttaactctgc atacaacgca atgatgatga ttattgttgt tggatgggca 600

atttatacctg ctggatatgc tgctgggttac ctaatgggtg gcgaagggtgt atacgcttca 660
 aacttaaacc ttatatataa ccttgccgac cttgttaaca agattctatt tggtttgatc 720
 atttggaatg ttgctgttaa agaattcttct aatgct 756

<210> 183
 <211> 252
 <212> PRT
 <213> Marine eubacteria

<400> 183

Thr Met Gly Lys Leu Leu Leu Ile Leu Gly Ser Ala Ile Ala Leu Pro
 1 5 10 15

Ser Phe Ala Ala Ala Gly Gly Asp Leu Asp Ile Ser Asp Thr Val Gly
 20 25 30

Val Ser Phe Trp Leu Val Thr Ala Gly Met Leu Ala Ala Thr Val Phe
 35 40 45

Phe Phe Val Glu Arg Asp Gln Val Ser Ala Lys Trp Lys Thr Ser Leu
 50 55 60

Ala Val Ser Gly Leu Ile Thr Gly Ile Ala Phe Trp His Tyr Leu Tyr
 65 70 75 80

Met Arg Gly Val Trp Ile Asp Thr Gly Asp Thr Pro Thr Val Phe Gln
 85 90 95

Tyr Ile Asp Trp Leu Leu Thr Val Pro Leu Gln Met Val Glu Phe Tyr
 100 105 110

Leu Ile Leu Ala Ala Cys Thr Ser Val Ala Ala Ser Leu Phe Lys Lys
 115 120 125

Leu Leu Ala Gly Ser Leu Val Met Leu Gly Ala Gly Phe Ala Gly Glu
 130 135 140

Ala Gly Leu Ala Pro Val Leu Pro Ala Phe Ile Ile Gly Met Ala Gly
 145 150 155 160

Trp Leu Tyr Met Ile Tyr Glu Leu Tyr Met Gly Glu Gly Lys Ala Ala
 165 170 175

Val Ser Thr Ala Ser Pro Ala Val Asn Ser Ala Tyr Asn Ala Met Met
 180 185 190

Met Ile Ile Val Val Gly Trp Ala Ile Tyr Pro Ala Gly Tyr Ala Ala
 Page 152

195

200

205

Gly Tyr Leu Met Gly Gly Glu Gly Val Tyr Ala Ser Asn Leu Asn Leu
 210 215 220

Ile Tyr Asn Leu Ala Asp Leu Val Asn Lys Ile Leu Phe Gly Leu Ile
 225 230 235 240

Ile Trp Asn Val Ala Val Lys Glu Ser Ser Asn Ala
 245 250

<210> 184
 <211> 756
 <212> DNA
 <213> Marine eubacteria

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 aaaacttcac ttgctgtatc tggtttaatt actggtatag ctttttggca ttatctctat 240
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